

RECEIVED
CENTRAL FAX CENTER

SEP 27 2006

REMARKS**Status of the Claims**

Claims 36-40 are pending. Claims 36-40 are rejected.

Claim 36 is amended. No new matter is added to these claims.

Claim amendments

Claim 36 is amended to overcome the 35 U.S.C. §103 rejections. Amended claim 36 is drawn to a method of screening for a compound that inhibits virus binding and entry to target cell. Such a method comprises the steps of attaching an enzyme to the C-terminal end of a viral envelope protein, thereby creating an envelope-enzyme fusion protein. Virus particles comprising the fusion protein and wild type viral envelope protein are generated such that the enzyme of the envelope-enzyme fusion protein is encapsulated into the virus particles. Target cells are then infected with these viral particles in the presence or absence of the compound and the activities of the enzyme in the infected cells are then measured. Decreased enzyme activities in the presence of the compound indicates that the compound inhibits virus binding and entry to the target cells mediated by the wild type envelope protein.

Double Patenting Rejection

Claim 36 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims

1, 8 and 9 if co-pending Application No. 11/036,568. Applicant respectfully traverses this rejection.

The Examiner has maintained this rejection over claims 1, 8 and 9 of Application No. 11/036,568 which is identical to the instant concept of claim 36. Applicant submits a terminal disclaimer to obviate this double patenting rejection. Accordingly, based on this remark, Applicant respectfully requests the withdrawal of double patenting rejection of claim 36.

The 35 U.S.C. §103 Rejection

Claims 36 and 39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over **Dulbeco** (US 4,593,002) or **Young et al** (US 5,916,563), either reference in further view of **Blumenthal et al** (J Biol Chem; 1987:262(28): 13614-13619). Applicant respectfully traverses this rejection.

Claims 36, 38 and 39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over **Russel et al.** (WO 94/06920) and **Blumenthal et al** supra. Applicant respectfully traverses this rejection.

Claims 37 and 40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over **Dulbeco** or **Young et al.**, either in view of **Blumenthal et al** as applied to claims 36 and 39 or **Russel et al** and **Blumenthal et al** as applied to

claims 36, 38 and 39 above and further in view of **Goldsmith et al** (US 6,451,598 B1). Applicant respectfully traverses this rejection.

The Examiner disagrees with Applicant's assertion that the limitation "such that the enzyme in the envelope-enzyme fusion protein is incorporated into the virus particle" renders the claims unobvious over the cited references. The Examiner states that since the instant claim recites the above discussed limitation and does not recite the limitation of encapsulation of the enzyme label or expressing the enzyme internally, the construct of **Blumenthal et al** meets the limitation.

Additionally, the Examiner states that since the instant claims do not recite the limitation regarding the degree of sensitivity or efficiency or the steps of elucidation of entry mechanisms or elucidation of inhibitory mechanisms of the candidate compounds, the cited references provide motivation to arrive at the claimed invention and a reasonable expectation of success. Hence, the Examiner has maintained these rejections.

Claim 36 is amended as discussed supra. The amended claim 36 recites that the enzyme of the envelope-enzyme fusion protein is encapsulated into the virus particles. This amendment is clearly supported by the teachings in the instant specification (page 4, lines 15-22; page 23, line 29-page 24, line 8).

With regards to the rejection of claim 36 over **Dulbeco** or **Young et al** either reference in further view of **Blumenthal et al**, Applicant submits that although the prior art references combined teach chimeric envelope/capsid proteins and using proteins that have enzymatic activity or heterologous enzyme tags, these proteins or tags are attached externally. For instance, **Blumenthal et al** describe fluorescent labeling of the virus where the virus is labeled on the external surface (pg. 13614-13615). The combined prior art references neither teach nor suggest encapsulating the enzyme in the virus as taught by the instant invention.

Applicant respectfully submits that based on the combined teaching of the prior art references, even if it would have been obvious to one of ordinary skill in the art to label the virus externally with the enzyme, it would not have motivated a person having ordinary skill in this art to encapsulate the enzyme. Furthermore, since the virus taught by the combined prior art references is labeled externally with the enzyme, there is a greater possibility for the enzyme to be exposed to its substrates before entry of the virus or action of entry inhibitors. Therefore, although such a virus may provide information regarding virus binding, it may not be efficient in providing information regarding the viral entry mechanism or the action of entry inhibitors as opposed to the virus described in the instant claim. Hence, the prior art references combined would not provide one of ordinary skill in the art to use a virus that has been labeled

externally to measure virus entry or action of entry inhibitors with reasonable expectation of success.

With regards to rejection of the instant claim 36 over *Russel et al* and *Blumenthal et al.*, Applicant submits that although *Russel et al* and *Blumenthal et al* teach attaching a heterologous protein to the envelope protein of the virus (*Russel et al.*: claims 1-4, abstract, *Blumenthal et al.*: bridging pages 13614-13615), the attachment results in the heterologous protein being displayed on the outside and not encapsulated in the virus as taught by the instant invention. The prior art references neither teach nor suggest encapsulating the enzyme.

Thus, based on the combined teachings of the prior art references, even if it would have been obvious to one of ordinary skill in the art to label the virus with the enzyme such that the enzyme is displayed externally, it would not have motivated one to encapsulate the enzyme. Furthermore, since the virus taught by the prior art references combined is labeled externally with the enzyme, there is a greater possibility for the enzyme to be exposed to its substrates before entry of the virus or action of entry inhibitors. Therefore, although such a virus may provide information regarding virus binding, it may not be efficient in providing information regarding the viral entry mechanism or the action of entry inhibitors. Hence, the no combination of the cited prior art references would provide a person having ordinary skill in this art with a reasonable expectation of

success in using a virus that has been labeled externally to measure virus entry or action of entry inhibitors.

With regards to the rejection of claim 37 and 40 over **Dulbeco** or **Young et al** either in view of **Blumenthal et al** or **Russel et al** and **Blumenthal et al** and further in view of **Goldsmith et al**, Applicant states that claim 36 of the instant invention is an independent claim and claims 37 and 40 depend from this independent claim. Independent claim 36 is not obvious over the combined teachings of **Dulbeco**, **Young et al** and **Blumenthal et al** or **Russel et al** and **Blumenthal et al** (see discussion supra). Therefore, claims 37 and 40 are not obvious over these combinations either. Furthermore, inclusion of **Goldsmith et al** with both these combinations does not render the independent claim 36 nor its dependent claims 37 and 40 obvious either.

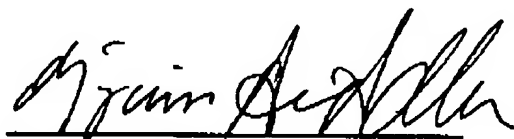
Applicant asserts that obviousness requires that the cited prior art references relied upon fairly teach or suggest all the elements of the instant invention and that an incentive or motivation be present in the cited prior art references to produce the claimed invention with reasonable expectation of success in its production. Applicant has shown that the cited prior art references do not teach or suggest all claim limitations and that there is no motivation in any combination of the cited prior art references to arrive at the instant invention with reasonable expectation of success. Therefore, Applicant contends that the instant invention is not prima facie obvious to one of ordinary skill in the art. Accordingly,

based on the above-mentioned amendment and remarks, Applicant respectfully request the withdrawal of all of the rejections under 35 U.S.C. §103(a).

This is intended to be a complete response to the Final Office Action mailed June 23, 2006. Applicant submits that the pending claims are in condition for allowance. Applicant also encloses a Terminal Disclaimer, a Petition for Extension of Time and Form PTO-2038 along with the response. If any issues remain outstanding, please telephone the undersigned attorney of record for immediate resolution.

Respectfully submitted,

Date: Sept 27, 2006



Benjamin Aaron Adler, Ph.D., J.D.
Registration No. 35,423
Counsel for Applicant

ADLER & ASSOCIATES
8011 Candle Lane
Houston, Texas 77071
(713) 270-5391 (tel.)
(713) 270-5361 (facs.)
badler1@houston.rr.com